REMARKS

This application has been reviewed in light of the Office Action dated March 20, 2006. Claims 1-41 are pending in this application. Claims 1, 3, 16, 19, 20, and 30, the independent claims, have been amended to define still more clearly what Applicant regards as the invention.

Claims 3, 6-8, and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Silva et al. (the IEEE publication entitled "Variable Block Size Wavelet Video Coding"). Claims 3, 6, 7, 9, and 10 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,084,908 to Chiang et al.; Claims 3-7, 11, 12, 14-18, 20-32, and 34-41, as being anticipated by U.S. Patent 6,249,614 to Kolesnik et al.; and Claims 1, 2, 19, and 33, as being anticipated by U.S. Patent 6,314,452 to Dekel et al.

Claim 3 is directed to a method of processing a coded digital signal including a set of samples obtained by coding a set of original samples representing physical quantities using a multiresolution coding format, and including a set of information relating to a size w, h of the set of original samples and its resolution res. The method includes locating a subset of original samples of given size zulx, zuly, zh, zw and resolution zres in the set of original samples according to the set of information relating to the size w, h and the resolution res of this set. The method also includes determining, amongst coefficients of a low-frequency sub-band LL_0 of a last decomposition level obtained by decomposition into frequency sub-bands of the set of original samples, a number of coefficients per dimension of the signal which correspond to the located subset. The method further includes deciding, at the decoding side, whether or not to modify the

size of the located subset according to the determined number of low-frequency sub-band coefficients before restoring the located subset.

Among other notable features of Claim 3 are (1) determining, amongst coefficients of a low-frequency sub-band LL_0 of a last decomposition level obtained by decomposition into frequency sub-bands of a set of original samples, a number of coefficients per dimension of the signal which correspond to a located subset, and (2) deciding, at the decoding side, whether or not to modify the size of the located subset according to the determined number of low-frequency sub-band coefficients before restoring the located subset.

Silva et al., as understood by Applicant, relates to a video coding algorithm based on wavelet decomposition. The motion compensated error images are represented by variable size blocks. The variable block size representation is obtained by a quadtree merging algorithm, the aim being to merge adjacent blocks (see, e.g., column 1, page 342) to build maximal size areas of either "moving" or "not moving" parts of the image. The document is understood to only discusses the encoding algorithm.

In Silva et al., the algorithm discussed therein takes place at the encoding side. However, in the method of Claim 3, the deciding step, of deciding whether or not to modify the size of a located subset according to a determined number of low-frequency sub-band coefficients before restoring the located subset, is performed at the decoding side.

And Silva et al. discusses an encoding algorithm while Claim 3 recites a method of processing a coded digital signal, i.e., which takes place after the encoding phase.

Furthermore, contrary to the Examiner's assertion at page 4 of the Office Action, Silva et al. does not teach or suggest "determining, amongst coefficients of a low-frequency sub-band LL_0 of a last decomposition level obtained by decomposition into frequency sub-bands of the set of original samples, a number of coefficients per dimension of the signal which correspond to the located subset," as recited in Claim 3. While Silva et al. may suggest the application of wavelet decomposition, there is no teaching of such a determining step in that document.

Nothing in Silva et al. would teach or suggest (1) determining, amongst coefficients of a low-frequency sub-band LL_0 of a last decomposition level obtained by decomposition into frequency sub-bands of a set of original samples, a number of coefficients per dimension of the signal which correspond to a located subset, and (2) deciding, at the decoding side, whether or not to modify the size of the located subset according to the determined number of low-frequency sub-band coefficients before restoring the located subset, as recited in Claim 3.

Accordingly, Claim 3 is believed to be patentable over Silva et al.

Chiang et al., as understood by Applicant, relates to a method for determining an optimal quadtree structure for quadtree-based variable block size motion estimation. One embodiment of Chiang et al. uses DCT-type coding (mono-resolution), and an alternative embodiment is based on a wavelet decomposition as discussed beginning at column 12, line 14. According to Chiang et al., an optimal quadtree structure is obtained by the minimization of the Lagrangian coding cost.

In Chiang et al., the video coding algorithm discussed takes place on the encoding side. However, in the method of Claim 3, the deciding step, of deciding whether

or not to modify the size of a located subset according to a determined number of low-frequency sub-band coefficients before restoring the located subset, is performed at the decoding side.

Furthermore, the Examiner asserts, at page 6 of the Office Action, that numeral 253 of Fig. 2 of Chiang et al. reads on the resolution zres of Claim 3. However, numeral 253, as discussed at column 7, lines 3-4 of Chiang et al., is a path containing an error signal or predictive residual signal. Thus, Applicant cannot agree that numeral 253 of Fig. 2 of Chiang et al. reads on the resolution zres of Claim 2. Applicant notes that in the specification of the present invention, the resolution is described (at page 14, lines 23-28) as being the number of samples per unit length used for representing the signal.

Nothing in Chiang et al. would teach or suggest deciding, at the decoding side, whether or not to modify the size of a located subset according to a determined number of low-frequency sub-band coefficients before restoring the located subset, as recited in Claim 3.

Accordingly, Claim 3 is believed to be patentable over Chiang et al.

Kolesnick et al., as understood by Applicant, relates to a method for performing video compression and decompression using dynamic quantization and/or encoding. The original data is filtered, for example by using a wavelet transformation into matrixes of coefficients, and based on the correlation level of the matrix of coefficients. One of two possible quantization techniques is selected. A given matrix of coefficients can be recursively divided until sub matrices meet the selection criteria for one of the encoding techniques or reach a sufficiently small size, as discussed at column 10, lines 42-45.

Fig. 13 of Kolesnick et al. is a data flow diagram illustrating the decompression of video data compressed using the system as disclosed in Fig. 1. Even if the decompression takes place at the decoding side, nothing in Kolesnick et al. would teach or suggest deciding, at the decoding side, whether or not to modify the size of a located subset according to a determined number of low-frequency sub-band coefficients before restoring the located subset, as recited in Claim 3.

According to step 1315 of Fig. 13 of Kolesnick et al., the size and number of significant coefficients of a given matrix is encoded and transmitted in the bitstream. Thus, nothing in Kolesnick et al. would teach or suggest a modification of the size of a located subset according to the determined number of low-frequency sub-band coefficients, as recited in Claim 3.

Accordingly, Claim 3 is believed to be patentable over Kolesnick et al.

Independent Claims 16, 20, and 30 each include certain features which are similar in many relevant respects to the features discussed above in connection with Claim 3. Accordingly, Claims 16, 20, and 30 are believed to be patentable over Kolesnick et al. for at least the reasons discussed above.

Claim 1 is directed to a method of processing a coded digital signal including (1) a set of samples of different types obtained by coding a set of original samples representing physical quantities, and (2) a set of information representing original samples and parameters used during the coding. The method includes the steps of determining a subset of samples corresponding to a selected part of the original digital signal using the set of information, and obtaining a number of samples of at least one predetermined type and which are contained in the determined subset of samples. The

method further includes the step of deciding whether or not to modify the determined subset of samples according to the obtained number of samples of the at least one predetermined type and according to a required level of quality, before restoring the selected part of the original signal.

Among other notable features of Claim 1 are deciding whether or not to modify the determined subset of samples according to the obtained number of samples of the predetermined type(s) and according to a required level of quality, before restoring the selected part of the original signal.

Dekel et al., as understood by Applicant, relates to a system for accessing a portion of an image. When a user wishes to access a remote image, the server performs a fast pre-processing step in near real-time of the image. Once the pre-processing stage is done (see, e.g., step 202 in Figure 2) the server sends to the client a notification that the image is ready to be served. The server also transmits the basic parameters associated with the image, such as dimensions, color space, etc. Upon receiving this notification, the client can select any ROI (Region of Interest) of the image using a standard graphical user interface. The ROI Is formulated (see, e.g., step 203) by the client into a request list that is sent to the server. Each request corresponds to a data block. Upon receiving the ROI request list, the server processes the requests. For each request, the server computes the data block and sends it to the client. The processing of the data block consists of, from a local portion of the uncompressed image, compressing and encoding the data block associated with the ROI. Data encoded is then progressively sent to the client (see, e.g., steps 803 - 804 of Figure 8).

As noted in previous papers, the system of Dekel et al. is based on the graphical selection of a part of an image by a client, after which the client computer determines the data-blocks subset corresponding to the selected part of the image and some requests are sent to the server in order to designate the selected data blocks. Upon reception of these requests, the server processes the data blocks by compressing and encoding that data. After the encoding, the encoded data is sent to the client in order to be decoded on the client side.

Thus, according to the Dekel et al. system, only the selected part of the image is encoded and sent to the client. At the decoding step, no additional processing is performed. However, Dekel et al. does not teach or suggest a decision whether or not to modify the determined subset according to (1) the obtained number of samples of the at least one predetermined type, and (2) a required level of quality. Further, in Claim 1, a decision whether or not to modify the determined subset is performed before restoring the samples at the decoding side, as shown in Figure 2.[1/] For these reasons, nothing in Dekel et al. would teach or suggest a modification of the number of samples at the decoding side.

Nothing in Dekel et al. would teach or suggest deciding whether or not to modify a determined subset of samples, determined corresponding to a selected part of an original digital signal using a set of information representing original samples and parameters during the coding, according to (1) an obtained number of samples of the predetermined type(s) and which are contained in the determined subset of samples, and

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1/It is of course to be understood that the references to various portions of the present application are by way of illustration and example only, and that the claims are not limited by the details shown in the portions referred to.

(2) a required level of quality, before restoring the selected part of the original signal, as recited in Claim 1.

Accordingly, Claim 1 is believed to be patentable over Dekel et al.

Independent Claim 19 includes certain features which are similar in many relevant respects to the features discussed above in connection with Claim 1. Accordingly, Claim 19 is believed to be patentable over Dekel et al. for at least the reasons discussed above.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

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